

IN THE CLAIMS

1. (currently amended) A receiving device for receiving spread signals which are respectively transmitted over a plurality of channels, in a CDMA communication, comprising:

a path detector, which is used in a time-division manner so as to generate timing signals for the plurality of channels, for generating a timing signal, in each of a time interval, corresponding to each of the plurality of channels according to a correlation between received spread signals, which are spread with different spread codes, and a spread code corresponding to each of the plurality of channels; and

a plurality of despread demodulators, which are arranged for the plurality of channels, for respectively demodulating a corresponding spread signal among the spread signals according to one of the timing signals generated by said path detector.

2. (previously presented) The receiving device according to claim 1, wherein said path detector further comprising:

spread code generating means for generating spread codes corresponding to the plurality of channels in an order according to a predetermined algorithm;

a matched filter for outputting correlation level data between the received spread signals and the spread code generated by said spread code generating means; and

timing signal generating means for generating a timing signal based on the correlation level data.

3. (original) The receiving device according to claim 1, wherein:

a spread signal transmitted over each of the plurality of channels includes pilot signals inserted at predetermined intervals; and

said path detector generates the timing signal by using the pilot signals for each of the plurality of channels.

4. (previously presented) A receiving device for receiving spread signals which are respectively transmitted over a plurality of channels in a CDMA communication, which generates a timing signal by using a plurality of pilot signals for each of the plurality of channels, comprising:

a path detector, which is used in a time-division manner so as to generate timing signals for the plurality of channels, for generating a timing signal corresponding to each of the plurality of channels according to a correlation between received spread signals and a spread code corresponding to each of the plurality of channels; and

a plurality of despread demodulators, which are arranged for the plurality of channels, for respectively demodulating a corresponding spread signal among the spread signals according to one of the timing signals generated by said path detector,

wherein said path detector further comprising:

first path detecting means for detecting a path with a voltage addition operation if a correlation level between pilot signals is high;

second path detecting means for detecting a path with a power addition operation if the correlation between pilot signals is low; and

timing signal generating means for generating the timing signal based on the paths detected by said first and second path detecting means.

5. (previously presented) A receiving device for receiving spread signals which are respectively transmitted over a plurality of channels in a CDMA communication, which generates a timing signal by using a plurality of pilot signals for each of the plurality of channels, comprising:

a path detector, which is used in a time-division manner so as to generate timing signals for the plurality of channels, for generating a timing signal corresponding to each of the plurality of channels according to a correlation between received spread signals and a spread code corresponding to each of the plurality of channels; and

a plurality of despread demodulators, which are arranged for the plurality of channels, for respectively demodulating a corresponding spread signal among the spread signals according to one of the timing signals generated by said path detector,

wherein said path detector further comprising:

path detecting means for detecting a path with an operation for adding an absolute value of correlation level data of each of the plurality of pilot signals; and

timing signal generating means for generating the timing signal based on the path detected by said path detecting means.

6. (previously presented) A receiving device for receiving spread signals which are respectively transmitted over a plurality of channels in a CDMA communication, comprising:

a path detector, which is used in a time-division manner so as to generate timing signals for the plurality of channels, for generating a timing signal corresponding to each of the plurality

of channels according to a correlation between received spread signals and a spread code corresponding to each of the plurality of channels;

a plurality of despread demodulators, which are arranged for the plurality of channels, for respectively demodulating a corresponding spread signal among the spread signals according to one of the timing signals generated by said path detector; and

priority information storing means for storing information about priorities of the plurality of despread demodulators, wherein

said path detector operates for a despread demodulator determined based on the priority information stored in said priority information storing means.

7. (original) The receiving device according to claim 6, wherein when a synchronization establishment process is requested for a certain channel, a higher priority is given to a despread demodulator corresponding to the channel.

8. (original) The receiving device according to claim 6, further comprising:
profile detecting means for detecting a delay profile of each of the channels; and
priority determining means for determining the priorities of the plurality of despread demodulators based on an amount of a change of the delay profile, which is detected for each of the channels.

9. (original) The receiving device according to claim 8, wherein said priority determining means determines the priorities of the plurality of despread demodulators based on a change of a maximum path on each of the channels.

10. (original) The receiving device according to claim 8, wherein said priority determining means determines the priorities of the plurality of despread demodulators based on changes of a maximum path on each of the channels and of a path existing in a predetermined range from the maximum path.

11. (original) The receiving device according to claim 6, wherein said path detector determines the priorities of the plurality of despread demodulators based on an error rate of each of the channels.

12. (original) The receiving device according to claim 6, wherein said path detector references said priority information storing means only when timings of the pilot signals on the plurality of channels overlap.

13. (previously presented) A receiving device for receiving spread signals which are respectively transmitted over a plurality of channels in a CDMA communication, comprising:

a path detector, which is used in a time-division manner so as to generate timing signals for the plurality of channels, for generating a timing signal corresponding to each of the plurality of channels according to a correlation between received spread signals and a spread code corresponding to each of the plurality of channels;

a plurality of despread demodulators, which are arranged for the plurality of channels, for respectively demodulating a corresponding spread signal among the spread signals according to one of the timing signals generated by said path detector;

a memory for storing input spread signals; and

memory controlling means for reading the input spread signals from said memory and for providing said path detector with the read signals, when the timing of pilot signals on the plurality of channels overlap, wherein

a spread signal transmitted over each of the plurality of channels includes the pilot signals inserted at predetermined intervals,

said path detector generates the timing signal by using the pilot signals for each of the plurality of channels, and

said path detector sequentially generates timing signals corresponding to the channels by using the pilot signals on the plurality of channels.

14. (previously presented) The receiving device according to claim 13, wherein said memory controlling means repeatedly reads the input spread signals from said memory a required number of times, according to the number of overlapping pilot signals.

15. (original) The receiving device according to claim 13, wherein when the timings of the pilot signals on the plurality of channels overlap, only portions including the pilot signals within the input signals are stored in said memory.

16. (original) The receiving device according to claim 1, further comprising:
delaying means for delaying a signal to be input to the plurality of despread demodulators by an amount of time required to generate the timing signal by said path detector.

17. (previously presented) The receiving device according to claim 3, further comprising:

- a memory for storing at least a portion of the received spread signals including a pilot signal within an input spread signal; and
- memory controlling means for repeatedly reading the pilot signal from said memory an L-1 number of times and for providing said path detector with read pilot signals, when L branch space diversity reception is made, wherein

said path detector sequentially generates timing signals by using the respective pilot signals.

18. (previously presented) A receiving device for receiving spread signals which are respectively transmitted over a plurality of channels in a CDMA communication, comprising:

- a path detector, which operates in a time-division manner, for detecting delay profiles for the plurality of channels being separated with a respective spread code and for generating a timing signal corresponding to each of the channels based on the delay profiles; and
- a plurality of despread demodulators, which are arranged for the plurality of channels, for respectively demodulating a corresponding spread signal among a plurality of spread signals according to one of the timing signals generated by said path detector.

19. (previously presented) A receiving device for receiving spread signals which are respectively transmitted over a plurality of channels in a CDMA communication, comprising:

a plurality of despread demodulators, which are respectively arranged for the plurality of channels, for demodulating a spread signal transmitted over a corresponding channel by despreading the spread signal with a corresponding spread code; and

instructing means for instructing a phase of each spread code used for despreading each of the spread signals transmitted over the plurality of channels, wherein

said instructing means is shared by the plurality of despread demodulators.

20. (currently amended) A receiving device for receiving spread signals which are respectively transmitted over a plurality of channels in a CDMA communication, comprising:

a path detector being used in a time-division manner so as to generate timing signals for the plurality of channels according to correlations between received spread signals, which are spread with different spread codes, and spread codes; and

a plurality of despread demodulators demodulating the plurality of channels, wherein a despread demodulator demodulates each received spread signal according to a corresponding timing signal among said timing signals generated by said path detector.